Practical Configuration Management in a Heterogeneous Computing Environment

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Configuration Management

A management discipline with the goal of achieving and maintaining product integrity in an environment of change.

Configuration Management provides a structure or framework within which the configurations of project systems and components can be managed to the benefit of all concerned.

Change includes the introduction of new elements and the retirement of obsolete elements, as well as modifications to existing elements.

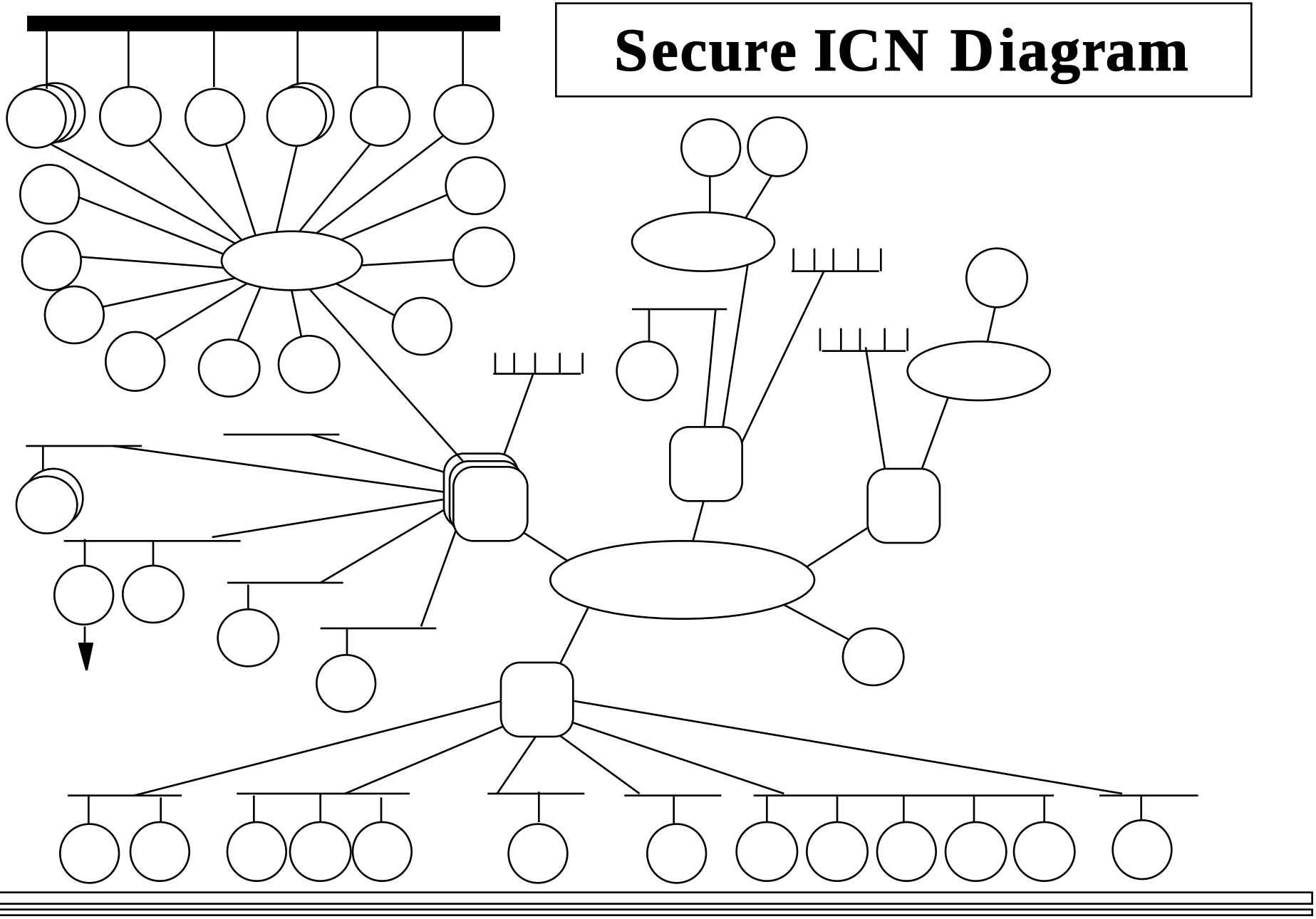
Configuration Management Disciplines

- Configuration Identification
  - **Labeling and Cataloging Configuration Objects**
- Configuration Control
  - **Analysis & decisionmaking about changes to those Objects**
  - **Notifying users & stakeholders of changes and their status**
- Configuration Auditing
  - **Verification, Validation**
- Configuration Status Accounting
  - **Tracking change activities start to finish**
  - **Tracking deployments and retirements**

The Secure Integrated Computing Environment

- Heterogeneous Environment
- ~30 Integrated Services
- Q and S-NSI/CNWDI clearances
- Unclassified thru SRD
- PI=0, PI=1, and PI=3
- ~20 ISSOs
- Even more SysAdmins

Secure ICN Diagram



Configuration Integrity Board

- ISSOs and SysAdmins implement security and local configuration management
- The CIB manages network-level CM and security-related issues for the ICN
- Secure ICN Segment ISSOs are CIB members
- Secure ICN ISSO is the chair

Configuration Identification

- Secure ICN Master Security Plan identifies major components: ICN Segments
- Appendices identify segment composition in Hardware/Software inventories
- ISSOs update inventories with approved change request implementation
- Plan updates include current HW/SW inventories

Change Control

- Secure ICN Segment ISSOs approve changes that aren’t security relevant
- Secure ICN ISSO and Segment ISSOs deliberate on security-relevant changes
- Secure ICN ISSO approves change proposals prior to implementation
- LANL ISSM approves changes to security plans

Configuration Auditing

- The Master Test Plan and Segment Test Plans verify the correct functioning of approved security measures
- Periodic network and system testing identifies problems in security posture: policies, approved security measures, or implementations

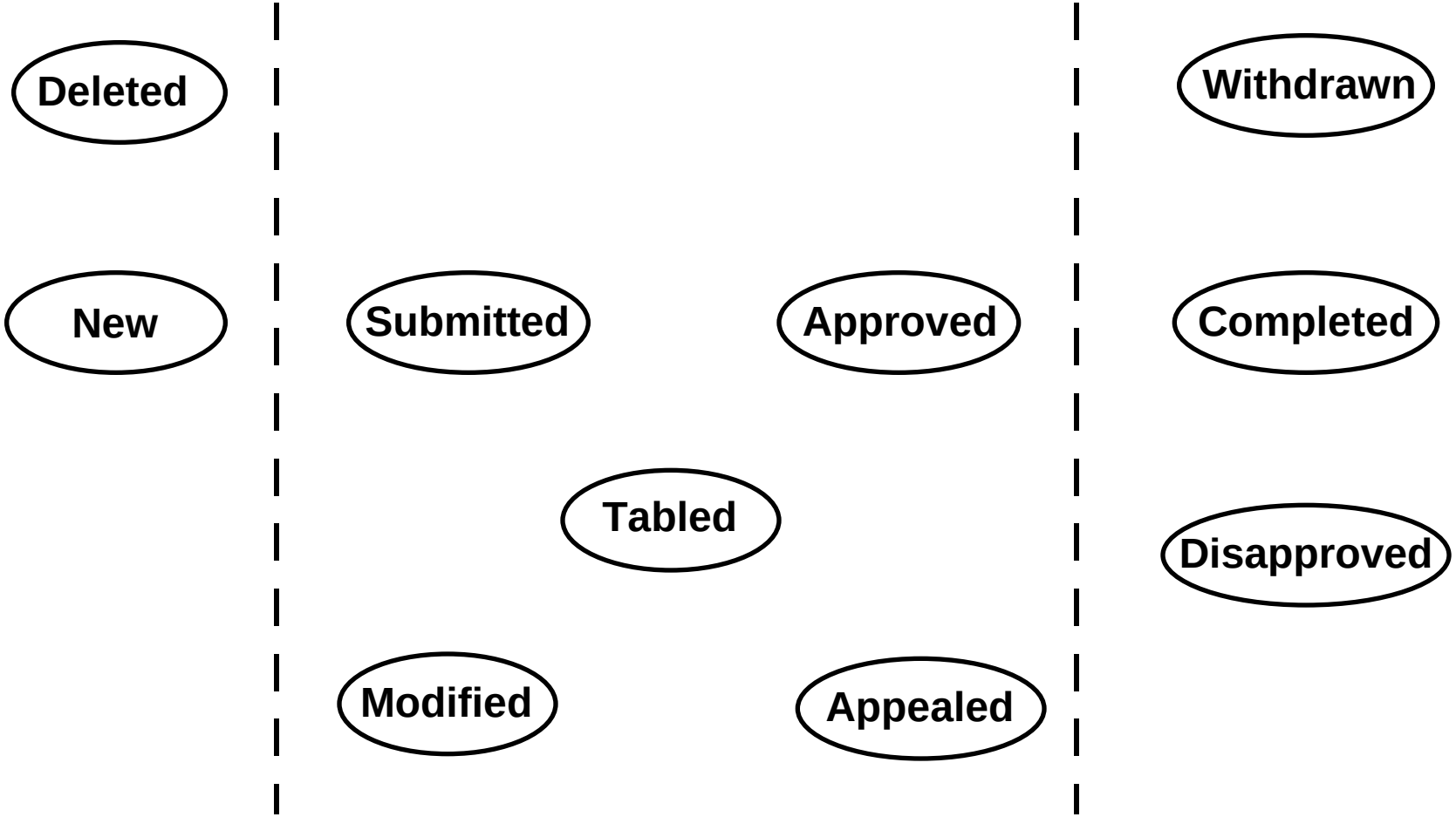
Status Accounting

- Change Request records specify proposals and approvals for configuration changes along with completion dates
- Test execution reports detail the results of system and network testing
- Accreditation memos document segment deployments and retirements

Change Requests

- Security Relevance: Global, Local, None
- Segment ISSOs determine the impact of proposed changes
- CIB members offer comments and recommendations
- CIB Chair approves change requests
- ISSM approves Security Plan changes

Change Request States



System Demonstration

- On-line, if the projector, computer, phone, phone lines, network, gateway, server, and database are all up at the same time
- Local simulated database demonstration if the projector and computer are both up
- Otherwise, just a viewgraph presentation

Parting Thoughts

- Get buy-in to CM early on with customers and developers and collaborate to establish CM.
- Realize that there is no CM “pill.” It is hard work and a continuous effort is required.
- How do we accomplish CM goals in an environment of increasingly shorter times to market and pressures to reduce overhead?

Teamwork is the key to survival in tough times.

Comments? Questions? Suggestions?

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